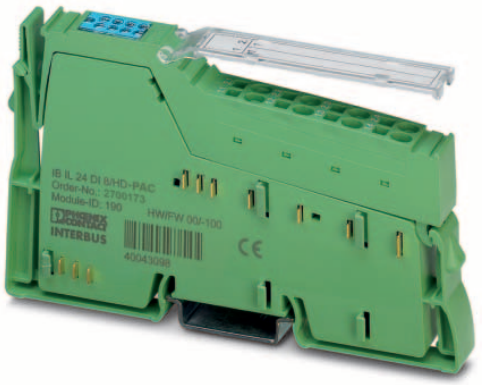
IB IL 24 DI8/HD-PAC

Inline digital input terminal, 8 inputs, 24 V DC



AUTOMATION

Data sheet
7984_en_01

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1 Description

The terminal block has been developed for use in an Inline station. It is used to acquire digital signals.

Features

- Connections for eight digital sensors
- Connection of sensors in 1-wire technology
- Diagnostic and status indicators

	This data sheet is only valid in association with the IL SYS INST UM E user manual.
	Make sure you always use the latest documentation. It can be downloaded from the product at www.phoenixcontact.net/catalog.

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3 Ordering data

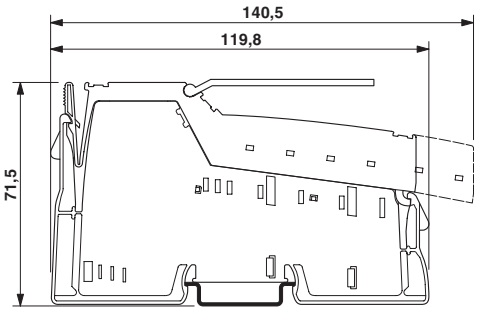
Description	Type	Order No.	Pcs./Pkt.
Inline digital input terminal, complete with accessories (connector and labeling field), 8 inputs, 24 V DC, single-wire connection method	IB IL 24 DI8/HD-PAC	2700173	1

Accessories	Type	Order No.	Pcs./Pkt.
Connector, for digital 1, 2 or 8-channel Inline terminals (Plug/Adapter)	IB IL SCN-8	2726337	10
Labeling field, width: 12.2 mm (Marking)	IB IL FIELD 2	2727501	10
Inline terminal for power distribution (24 V), complete with accessories, (connector and labeling field) 24 V supply voltage is fed out from the segment circuit (US)	IB IL PD 24V-PAC	2862987	1
Inline terminal for power distribution (GND), complete with accessories, (connector and labeling field) connections for GND	IB IL PD GND-PAC	2862990	1
VARIOFACE front adapter for 8-channel Inline HD modules (Plug/Adapter)	FLKM 14-PA-INLINE/DIO8	2900889	1

Documentation	Type	Order No.	Pcs./Pkt.
User manual, English, Automation terminals of the Inline product range	IL SYS INST UM E	-	-
Data sheet, English, INTERBUS addressing	DB GB IBS SYS ADDRESS	-	-

4 Technical data

Dimensions (nominal sizes in mm)



Width	12.2 mm
Height	119.8 mm
Depth	71.5 mm
Note on dimensions	Housing dimensions

General data

Color	Green
Weight	60 g (With connector)
Operating mode	Process data mode with one byte
Ambient temperature (operation)	-25 °C ... 55 °C
Ambient temperature (storage/transport)	-25 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (according to DIN EN 61131-2)
Permissible humidity (storage/transport)	10 % ... 95 % (according to DIN EN 61131-2)

General data	
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Degree of protection	IP20
Protection class	III, IEC 61140, EN 61140, VDE 0140-1

Connection data	
Name	Inline connectors
Type of connection	Spring-cage connection
Conductor cross section solid / stranded	0.08 mm² ... 1.5 mm²
Conductor cross section [AWG]	28 ... 16

Interface Inline local bus	
Type of connection	Inline data jumper
Transmission speed	500 kbps

Power consumption	
Segment supply voltage U_S	24 V DC (nominal value)
Current consumption from U_S	max. 5.5 mA DC
Communications power U_L	7.5 V DC
Current consumption from U_L	max. 30 mA DC
Power consumption	max. 0.25 W (at U_L)
Power loss	max. 0.72 W

Digital inputs	
Number of inputs	8
Type of connection	Spring-cage connection
Connection method	1-wire
Description of the input	EN 61131-2 types 1 and 3
Nominal input voltage	24 V DC
Nominal input current	Typ. 2.4 mA
Input voltage range "0" signal	-3 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC
Delay at signal change from 0 to 1	1 ms
Delay at signal change from 1 to 0	1 ms
Permissible conductor length to the sensor	30 m

Programming Data	
ID code (hex)	BE
ID code (dec.)	190
Length code (hex)	81
Length code (dec.)	129
Process data channel	8 bits
Input address area	1 byte
Output address area	0 byte
Parameter channel (PCP)	0 byte
Register length (bus)	8 bits

For the programming data/configuration data of other bus systems, please refer to the corresponding electronic device data sheet (e.g., GSD, EDS).

PROFIBUS telegram data	
Required parameter data	3 Byte
Need for configuration data	4 Byte

Electrical isolation/isolation of the voltage areas	
5 V supply incoming remote bus/7.5 V supply (bus logic)	500 V AC , 50 Hz , 1 min
5 V supply outgoing remote bus/7.5 V supply (bus logic)	500 V AC , 50 Hz , 1 min
7.5 V supply (bus logics)/24 V supply (I/O)	500 V AC , 50 Hz , 1 min
24 V supply (I/O) / functional earth ground	500 V AC , 50 Hz , 1 min

To achieve electrical isolation between the logic level and the I/O area, supply these areas from separate power supply units. Interconnection of the power supply units in the 24 V area is not permitted (see also user manual).

Approvals

For the latest approvals, please visit www.phoenixcontact.net/catalog.

5 Additional tables

Input characteristic curve	
Input voltage U [V]	**Typical input current I [mA]**
-30 < U ≤ 0.7	0
3	0.12
6	1.32
9	2.32
12	2.36
15	2.36
18	2.36
21	2.36
24	2.40
27	2.40
30	2.40

6 Internal circuit diagram

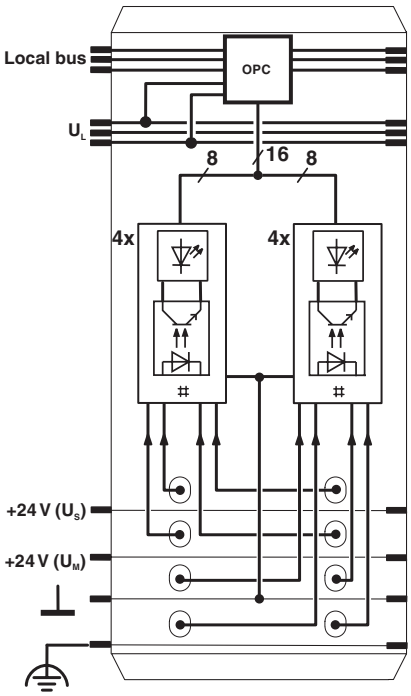


Figure 1 Internal wiring of the terminal points

OPC Protocol chip
(Bus logic including voltage conditioning)

LED (status indicator)

Optocoupler

Digital input

Explanation for other used symbols has been provided in the IL SYS INST UM E user manual.

7 Local status and diagnostic indicators

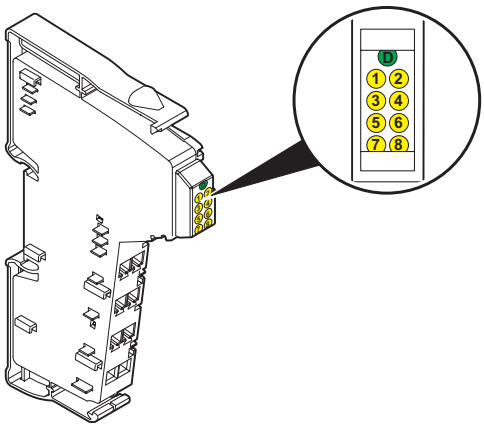


Figure 2 Local status and diagnostic indicators

Designation	Color	Meaning
D	Green	Diagnostics (bus and logic voltage)
1 to 8	Yellow	Status of the inputs

Function identification

Light blue

8 Terminal point assignment

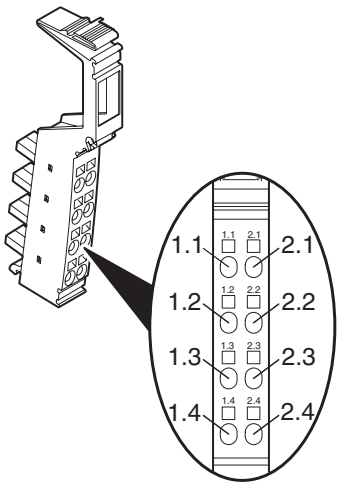


Figure 3 Terminal point assignment

Terminal point	Assignment
1.1 / 2.1	Signal input (IN 1 / IN 2)
1.2 / 2.2	Signal input (IN 3 / IN 4)
1.3 / 2.3	Signal input (IN 5 / IN 6)
1.4 / 2.4	Signal input (IN 7 / IN 8)

9 Connection notes and examples

When connecting the sensors observe the assignment of the terminal points to the process data.

NOTE: Malfunction

The sensors and U_S must be supplied from the same voltage supply.

The simplest way to meet this requirement is to use the IB IL PD 24V-PAC terminal. Wire the 24 V sensor connections to this terminal. In this way, they are supplied from the potential jumper U_S of the Inline station.

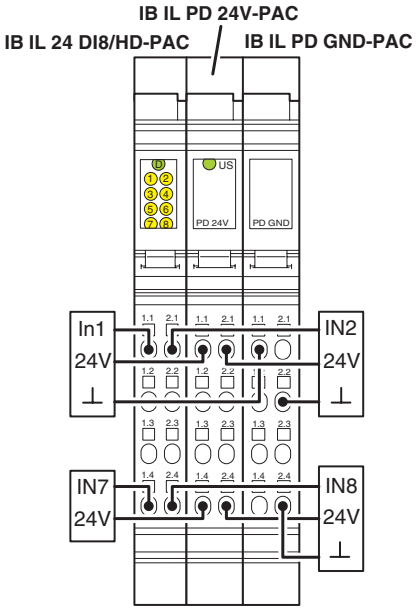


Figure 4 Typical connection of sensors when terminals for potential distribution are used

The sensors can also be connected via external busbars. Ensure that the sensors and U_S are supplied from the same voltage supply.

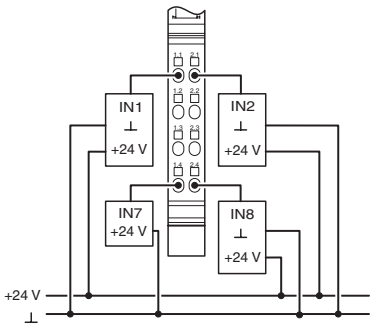


Figure 5 Example of a connection of sensors when using external busbars

10 Application examples

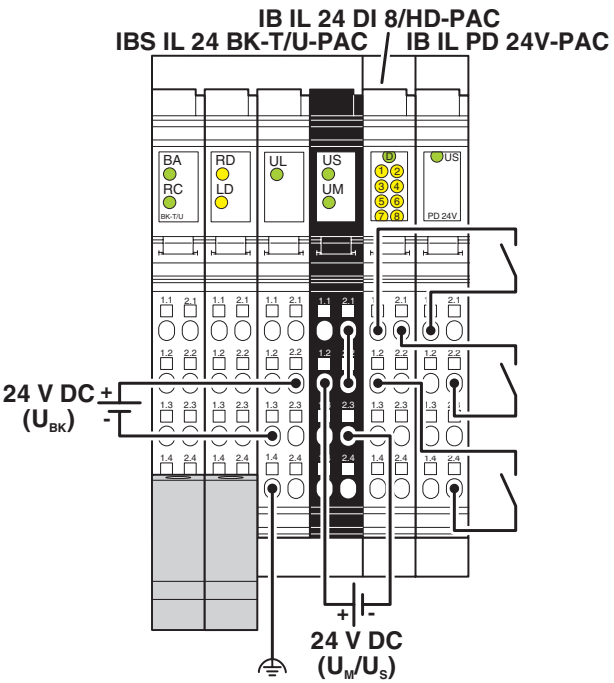


Figure 6 Connection of sensors when using the IB IL PD 24V-PAC terminal

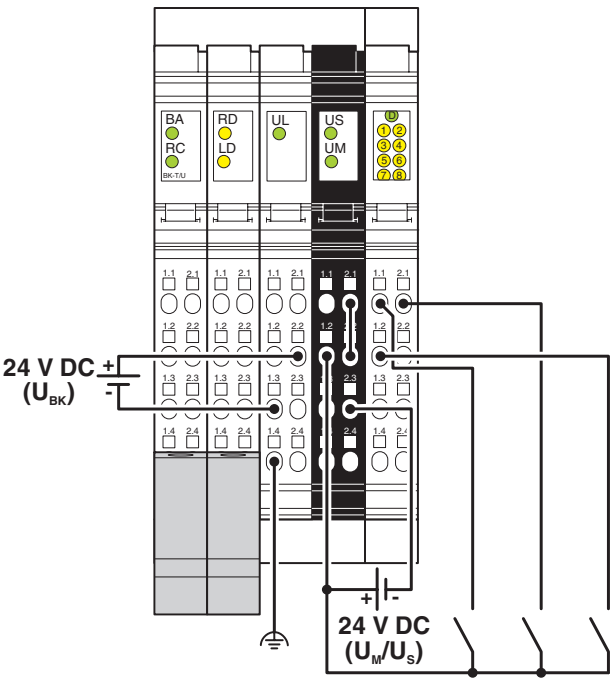


Figure 7 Connection of sensors when using external busbars

11 Process data

Assignment of the terminal points to IN process data

(Byte.Bit) view	Byte	Byte 0							
	Bit	7	6	5	4	3	2	1	0
Assignment	Terminal point (signal)	2.4	1.4	2.3	1.3	2.2	1.2	2.1	1.1
Status indicator	LED	8	7	6	5	4	3	2	1

For the assignment of the illustrated (byte.bit) view to your INTERBUS control or computer system, please refer to the DB GB IBS SYS ADDRESS data sheet.

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